

4.2 BIOLOGICAL RESOURCES

4.2.1 AFFECTED ENVIRONMENT

The biological resources section focuses on plant and animal species habitats within the proposed study area. Screening studies were completed to assist in determining the presence of the plants, animals, and habitats that Federal and state resource management agencies consider deserving of special consideration in resource planning and development activities.

Biological resources were evaluated by reviewing existing literature, discussing species-specific information with agencies, and observations made during site visits to the study area. Pedestrian surveys were restricted to nonagricultural and nonurban habitats. Surveys of habitats within the ROW were conducted on June 25 through June 28, 2001; November 28, 2001; February 21 through February 22, 2002; and August 23, 2002. Wildlife observations and habitat characterizations were recorded during these surveys. Indications of wildlife presence that were noted included direct sightings, scat, tracks, burrows, and other signs. Vegetation communities were characterized in the field and mapped on aerial photos. Table C-1 in Appendix C summarizes observed habitat within the study area. Additional surveys would be conducted for the selected action as determined by the ROD. This information would be used to prepare the biological assessment.

4.2.1.1 RESOURCE STUDY AREA

The study for biological resources defined as the transmission line corridor from the O'Banion Substation south to the Tracy Substation, a total of approximately 100 miles, with an approximate width of 125 feet. In some cases, the survey width extends beyond the proposed right-of-way (ROW) when biological resources of concern could be directly or indirectly impacted.

4.2.1.2 ISSUES OF ENVIRONMENTAL CONCERN

Issues of environmental concern include areas of designated critical habitat, special-status wildlife and plants, and sensitive habitat types. These issues are described in detail below.

Designated Critical Habitat

Critical habitat was identified as an issue of concern to both the EPA and the U.S. Fish and Wildlife Service (USFWS). Critical habitat is defined in 50 CFR 424.02 as “the specific areas within the geographic area currently occupied by a species, at the time it is listed in accordance with the Act (*Federal Endangered Species Act* of 1973), on which are found those physical or biological features

essential to the conservation of the species and that may require special management considerations or protection, and . . .” Either the USFWS or the National Marine Fisheries Service (NMFS) may list critical habitat.

Special-status Wildlife and Plant Species

Special-status species are those plants and animals that are of concern to Federal, tribal and state resource management agencies. These may include endangered or threatened species, organisms with declining populations, or vanishing habitats. Table C-2 in Appendix C summarizes special-status species that have been identified as occurring or potentially occurring in the study area.

Special-status species that may occur in the study area were identified by searching the California Department of Fish and Game (CDFG) California Natural Diversity Data Base (CNDDDB), and from correspondence with the USFWS and NMFS (refer to Appendix C for the CNDDDB results and agency letters). The CNDDDB was searched on June 20, 2001, for each U.S. Geological Survey (USGS) 7.5-minute quadrangle within which the Proposed Action ROW occurs. The species list provided by the USFWS on October 29, 2001, contains the special-status species known to occur in the study area. The list provided by the NMFS on April 27, 2001, contains species known to occur within the aquatic systems crossed by the Proposed Action ROW. Both lists are summarized in Appendix C.

Sensitive Habitat Types

Wetlands, primarily vernal pools, are an issue of concern within the study area. Vernal pools provide habitat for a number of endangered, threatened, proposed, and Candidate species. These include several species of vernal pool fairy and tadpole shrimp, as well as a number of plants.

Riparian corridors, another sensitive habitat type found within the study area, are defined as those habitats bordering rivers and streams. They contain plant species that are considered mesophytic (a plant that tolerates both dry and wet conditions). These include cottonwood (*Populus* sp.), willow (*Salix* sp.), sycamore (*Platanus* sp.), and other herbaceous and woody vegetation. Riparian corridors are sensitive because of their proximity to aquatic systems. Ground disturbance in riparian corridors can lead to erosion and the subsequent increase in sedimentation that would decrease water quality in these areas and downstream. Vegetation removal within riparian corridors can also increase the adverse effects of flooding.

4.2.1.3 CHARACTERIZATION

The following section presents a characterization of habitat types and associated plant species found in the study area. Each segment within the study area is then described based on these habitat types.

Habitat Types and Associated Plant Species

Fifteen different habitat types occur within the study area. In general, habitat types were categorized based on *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). Riverine, lacustrine, pasture, cropland, orchard/vineyard, and urban habitat types, which could not be categorized using Holland (1986), were categorized based on *A Guide to Wildlife Habitats of California* (Mayer and Laudenslayer 1988). Brief descriptions of these habitat types and associated plant species are provided below.

- **Cropland**—Cropland habitat is typically a monoculture; that is, a single species growing in a given space. Most croplands support annuals planted in spring and harvested during summer or fall. In many areas, second crops are commonly planted after the first are harvested (Zeiner 1988a). A major portion of the cropland in the study area is used for rice fields, which provide habitat for a different set of species, such as waterfowl, because they are flooded.
- **Freshwater emergent wetland**—These wetlands are characterized by erect, rooted, herbaceous hydrophytic (water-loving) vegetation. Dominant plants are generally perennials up to seven feet high (Cowardin *et al.* 1979). Freshwater emergent wetlands are flooded frequently and the plants found there must be able to tolerate an absence of oxygen (anaerobic) environment around their roots. Additional detail regarding this habitat type is provided in Sections 4.6 and 4.16, which address floodplains and wetlands, respectively.
- **Great Valley Cottonwood Riparian Forest**—This habitat type is a dense, broad-leaved, winter-deciduous riparian forest dominated by Fremont cottonwood (*Populus fremontii*) and Gooddings willow (*Salix gooddingii variabilis*). The understory is dense, with abundant vegetative reproduction of canopy-dominant species. California wild grape (*Vitis californica*) is the most conspicuous vine. Scattered seedlings of shade-tolerant species such as box-elder (*Acer negundo californica*) or Oregon ash (*Fraxinus latifolia*) may be found within this riparian forest, but frequent flooding prevents their reaching into the canopy (Holland 1986).
- **Great Valley Mixed Riparian Forest**—This habitat is a tall, dense, winter-deciduous, broad-leaved riparian forest. The tree canopy usually is fairly well closed and moderately to densely stocked with several species including box-elder, California black walnut (*Juglans californica hindsii*), western sycamore (*Platanus racemosa*), Fremont's cottonwood, Goodding's willow, red willow (*Salix laevigata*), and *Salix lasiandra*. The understory consists of these taxa plus shade-tolerant shrubs like buttonbush (*Cephalanthus occidentalis*) and Oregon ash. Several vine species are conspicuous in both tree and shrub canopies (Holland 1986).
- **Great Valley, Valley Oak Riparian Forest**—This habitat contains medium to tall trees that are rarely more than 100 feet tall. The habitat generally consists of broad-leaved, winter-deciduous, closed-canopy, riparian forest dominated by valley oak. Understory species include scattered Oregon ash, California black walnut and western sycamore, as well as young valley oaks. Vines are often conspicuous and quickly moving into sunny areas created by openings in the canopy. They are also scattered throughout the shady understory (Holland 1986).
- **Lacustrine**—Lacustrine habitats, including ponds or lakes, are inland depressions or dammed riverine channels containing standing water. They may vary from small ponds of less than two acres to large areas covering several square miles. Depth can vary from a few inches to hundreds of feet. Lacustrine habitats include permanently flooded lakes and reservoirs, intermittent lakes, and ponds (Grenfell 1988a). Ponds are the main lacustrine habitat type in the study area.
- **Nonnative Grassland**—A dense to sparse cover of annual grasses (plants that germinate, mature, set, seed, and die in one year) typifies this habitat type, often associated with numerous species of showy-flowered, native annual forbs (“wildflowers”), especially in years of favorable rainfall. Germination occurs with the onset of the late fall rains, growth, flowering, and seed-set occur from winter through spring. With a few exceptions, the plants are dead through the summer-fall dry season, persisting as seeds (Holland 1986).
- **Orchard/Vineyard**—Orchards are typically single-species, tree-dominated habitats. Depending on the tree type and pruning methods, they may be low bushy trees or taller species with a closed canopy. Both have an open understory to facilitate harvest. Vineyards are composed of single species planted in rows, usually supported on wood and wire trellises. Vines are normally intertwined in the rows but are open between rows. The ground under the vines is usually sprayed with herbicide to prevent growth of unwanted plants (Schultze 1988).

- **Pasture**—Pasture vegetation is a mix of annual and perennial grasses and legumes that normally provide 100-percent ground cover. The mix of grasses and legumes varies according to management practices, such as seed mixture, fertilization, soil type, irrigation practices, weed control, and livestock type on the pasture (Zeiner 1988b).
- **Riverine**—Riverine habitats are intermittent or continually running water, such as rivers and streams (Grenfell 1988b). Within the study area, riverine habitats vary from large rivers, such as the San Joaquin and Cosumnes rivers, to intermittent streams, such as Coon Creek.
- **Urban**—The structure of urban vegetation varies with the five types of vegetative structure: tree grove, street strip, shade tree/lawn, lawn, and shrub cover. Tree groves are common in city parks, greenbelts, and cemeteries. Strips of trees along streets show variation in spacing of trees, depending on the species, design and landowner preferences. Lawns are structurally the most uniform vegetation of the California urban habitat. Shrub cover is more limited in distribution than the other structural types; hedges represent a variation of the urban shrub cover type. Species composition varies with planting design and climate (McBride and Reid 1988).
- **Valley Needlegrass Grassland**—This habitat is a mid-height (up to two feet) grassland dominated by perennial tussock-forming needlegrass (*Stipa pulchra*). Native and introduced annuals occur between the perennials, often actually exceeding the bunchgrasses in ground cover (Holland 1986).
- **Valley Oak Woodland**—This habitat type is similar to Northern Oak Woodland and Blue Oak Woodland, but typically, more open, forming a grassy understory savanna rather than a closed-canopy woodland. Valley Oak (*Quercus lobata*) is usually the only tree present within this type of woodland. This winter-deciduous species is California's largest broad-leaved tree, with mature individuals reaching 50 feet to 115 feet tall. Most stands consist of trees with an open-canopy growth form. The stands seldom exceed 30 to 40 percent ground cover (Holland 1986).
- **Valley Wildrye Grassland**—This is a dense, sod-prairie habitat dominated by rye grass *Elymus triticoides* (Holland 1986).
- **Vernal Pool**—Holland (1986) categorized two types of vernal pool habitat that may occur in the study area: Northern Hardpan Vernal Pool and Northern Claypan Vernal Pool. The surveys conducted did not distinguish between these two categories and, as a result, only the category vernal pool is used in this document. Vernal pools consist of grass- or mud-

bottomed swales, earth sumps, or basalt flow depression pools in unplowed grasslands (USFWS 1992) with an impermeable layer. The impermeable layer allows the pools to retain water much longer than the surrounding uplands; nonetheless, the pools are shallow enough to dry up each season. Vernal pools may fill and empty several times during the rainy season (California Wetlands Information System 2002). This habitat type is important in the Central Valley of California because only plants and animals that are adapted to this cycle of wet and dry can survive in vernal pools. A number of protected plant and animal species rely on vernal pool habitats resulting in special management consideration.

Segment Characterization

Figures 3-1 through 3-8 map the line segments and MPs. Segments A and A₁ have nine stream crossings (extending from the O'Banion Substation to north of the Elverta Substation), totaling approximately 0.9 miles of riverine and riparian habitat. Additionally, Segments A and A₁ parallel the Sutter Causeway for approximately nine miles. A total of 13.4 acres of wetland are crossed by this segment (wetlands are further described in Section 4.16). The first 1.8 miles of Segments A and A₁ crosses cropland—mostly rice fields and their associated irrigation ditches along with some scattered wetlands. The segment also crosses Gilsizer Slough from MP 1.8 to 2.0. Gilsizer Slough is an important freshwater emergent wetland, which provides suitable habitat for the giant garter snake. From MP 2.0 to 11.0, Segments A and A₁ cross cropland. At MP 11.0, the ROW encounters the north levee of the Feather River floodplain. This floodplain is approximately one-half mile wide. At least one structure (146/3) is in the Feather River State Wildlife Area that lies between the two levees. South of MP 11.5 (the south levee of the Feather River), the segments cross mostly cropland except at Coon Creek, between MPs 13.3 and 13.5, which contains some riparian habitat. Coon Creek is about 13.5 miles south of the O'Banion Substation. The next four miles cross cropland. About 17.5 miles south of the O'Banion Substation, Segments A and A₁ cross East Side Canal. From there to about MP 20.0, both of the segments cross croplands, some small freshwater emergent wetlands, and the riparian and floodplain habitats associated with Pleasant Grove Slough and Pleasant Grove Creek. Segment A continues to MP 22.4, crossing some urban and grassland habitat types.

Segments A and A₁ contain giant garter snake and California red-legged frog habitats near the O'Banion Substation and along the Sutter Bypass, (Segments A and A₁, MP 0.0 to 10.0) where wetlands and canal ditches are dispersed. There are numerous freshwater emergent wetlands, both natural and manmade. The latter includes

rice fields as well as irrigation ditches and canals. Birds were noted nesting and/or perching on the existing transmission line structures along the entire length of the segment.

Segment B is mostly residential, with some areas less developed than others. There may be vernal pool habitat along this segment. Most of the habitat types in Segment B include grasslands, urban and some valley oak woodlands. There are two stream crossings in Segment B totaling approximately 0.1 mile of riverine and riparian habitat. The segment also crosses 1.5 acres of wetlands (a more detailed description of wetlands is provided in Section 4.16 Wetlands).

The north end of Segment C (Elverta Substation to Hurley Substation) is rural residential from MP 0.0 to 5.5. There are wetlands, including vernal pools, intermixed with grassland habitat in this segment. Just south of the crossing of Interstate 80, urban habitat types become common. At approximately MP 7.5, the segment enters into the American River floodplain and continues through the floodplain for approximately 3.8 miles. Where Segment C crosses or parallels the American River floodplain, its associated vegetation includes elderberry shrubs. There is evidence of habitation by the threatened valley elderberry longhorn beetle (VELB). The floodplain of the American River, between MP 7.3 and 11.1 also contains several small freshwater emergent wetlands (see Section 4.16). There are 4.2 total miles (62.7 acres) of riparian habitat and vernal pools crossed by Segment C. There are also two drainage canal crossings in Segment C.

There are five stream crossings in Segment D (extending from the Hurley Substation to the Elk Grove Substation) totaling approximately 2.4 miles of riverine and riparian habitat. The segment also crosses 36.3 acres of wetlands (see Section 4.16 for further detail of wetlands occurring within this segment). Segment D parallels the American River for about one mile and crosses it once. The first one-quarter mile of Segment D crosses the floodplain of the American River which contains elderberry bushes in its riparian zone. The next one-half mile crosses urban habitat before recrossing the American River at the American River Parkway. The American River Parkway also contains elderberry bushes that support the Federally threatened VELB. After leaving the riparian habitat of the American River, as the segment goes further south, the land becomes more industrialized, leaving most natural communities and small highly fragmented parcels. The existing transmission line crosses urban habitat with industrial parks, landfills, and nonnative grasslands. Segment D then turns almost due south at MP 7.0, at the Hedge Substation. Once the segment passes Gerber Road at MP 8.8, the habitat becomes less urban and more rural

residential, with grasslands, croplands, and widely scattered residences. For most of the remaining length of Segment D, habitat types encountered include riparian, riverine, and grassland. Segment D crosses Laguna Creek and its associated riparian area at MP 12.8, which may provide habitat for the California red-legged frog. There may also be vernal pools and more riparian habitat along Elk Grove Creek at MP 14.7.

Segments E and E₁ (extending from the Elk Grove Substation south to the Tracy Substation) begin at the Elk Grove Substation and go almost due south to MP 8.0. The transmission line route crosses several lacustrine and emergent wetlands and at least one riverine wetland. The latter is associated with the Cosumnes River. The Cosumnes River corridor, which starts at MP 2.6 (Eschinger Road) and runs to MP 6.8 (Twin Cities Road), is part of the Cosumnes River Preserve and managed jointly by the Nature Conservancy, Bureau of Land Management (BLM), the CDFG, and other agencies. This area is managed for the benefit of wildlife and native communities. The Cosumnes River floodplain contains dense riparian habitat consisting of willows and poplar trees with scattered oak trees approximately 120 yards apart on each side of the river. The existing ROW contains a 25-foot wide vegetation buffer where vegetation is limited to 12 feet high along the north and south banks of the Cosumnes River. There is the likelihood of a large giant garter snake population around Badger Creek, Segments E and E₁, MP 4.4. From about MP 10.0 to 13.0 Segments E and E₁ cross several draws and sloughs as well as the Mokelumne River and Dry Creek. These riverine systems contain important riparian habitat. Segment E₁ crosses 23 streams totaling approximately 3.1 miles of riverine and riparian habitat. This segment also crosses 47.3 acres of wetlands.

Other important wetland habitat is found from MP 24.3 to 31.0. There is a large wetland/riparian area between Pixley Slough and Bear Creek. Access was limited during surveys, but observations from the levee showed an extensive dense wetland area. The area appeared to contain several large poplar trees and valley oaks. Fourteen Mile Slough, San Joaquin River, and Stockton Deep Water Channel along with Mokelumne Slough provide riverine and riparian habitat.

At MP 31.1, Segments E and E₁ turn southwest to the Tracy Substation. Most of this portion of Segments E and E₁ traverse croplands including orchards, vineyards, row crops, and grasslands. As the transmission line approaches the Tracy Substation, the habitat includes more grassland types such as pasture and annual grasslands, as well as freshwater emergent wetlands. The agricultural areas are interspersed with ditches, drains, and watercourses. Elderberry shrubs were identified within some of these

agricultural areas beneath existing towers (MP 36.75, 40.3, and 41.5).

Segments E and E₁ cross several watercourses that provide riparian habitat. The habitat includes areas suitable for giant garter snake, red-legged frog, and vernal pool species of concern. Important riparian habitat was noted at the Cosumnes and San Joaquin river crossings, Badger, Laguna, and Dry creeks and Pixley Slough. Freshwater emergent wetlands were observed in association with the watercourses. A number of vernal pools were found in the area of the Cosumnes River Nature Preserve.

Segment F is approximately 1.5 miles long. The study area for Segment F crosses Curry Creek at approximately MP 0.3. Curry Creek contains some riparian habitat. There is one stream crossing in Segment F totaling approximately 0.1 miles of riverine and riparian habitat. One half acre of wetland is also crossed by the segment (see Section 4.16, Wetlands).

Between MP 2.0 and 4.2 of Segment G where it crosses Curry Creek, several unnamed tributaries to Curry Creek and several wetland areas associated with Curry Creek exist. These wet areas, including the streams, appear to be suitable habitat for giant garter snake and red-legged frog. Rice fields at the north end of Segment G could also provide suitable habitat for both species. Vernal pools may also be present within and adjacent to the ROW. There are two stream crossings in Segment G totaling approximately 0.2 miles of riverine and riparian habitat. Three acres of wetland are also crossed by the segment (see Section 4.16, Wetlands).

The habitat for Segment H includes areas suitable for giant garter snake, red-legged frog, and vernal pool species of concern. Segment H would also cross several unnamed drainages that flow west to the Natomas East Main Drainage Canal, and the potential exists for the introduction of fish species into these waterbodies.

4.2.2 ENVIRONMENTAL CONSEQUENCES

4.2.2.1 STANDARDS OF SIGNIFICANCE

The Proposed Action and alternatives would have significant and adverse effect on biological resources if they:

- Adversely affect a listed endangered, threatened, or proposed plant or animal species or designated critical habitat,
- Substantially interfere with the movement of any native resident or migratory fish or wildlife species for more than one reproductive season,
- Reduce the value of habitat for fish, wildlife, or plants to an unusable level,

- Cause a native fish or wildlife population to drop below self-sustaining levels,
- Introduce or increase the spread of noxious weeds, or
- Adversely and substantially affect important riparian areas, wetlands, or other wildlife habitats.

Short-term impacts are those that last through the construction phase of a project, or one or two reproductive cycles, whichever is longer.

Long-term impacts are those that last more than two reproductive periods, or as long as the life of the transmission line depending on the organism or habitat involved.

Direct impacts are those that occur as a result of construction or operation of the transmission line.

Indirect impacts are those that occur as a result of the transmission line presence. These are usually associated with increased human accessibility to a previously inaccessible area. Because of the existing development in the Sacramento Valley, indirect impacts to biological resources would be negligible.

4.2.2.2 ENVIRONMENTAL PROTECTION MEASURES

EPMs for biological resources from Table 3-4 include the following:

- Mitigation measures developed during the consultation period under Section 7 of the ESA would be adhered to as specified in the subsequent Biological Opinion of the USFWS. In addition, mitigation developed in conjunction with state and tribal authorities would be followed.
- Before construction, all construction personnel would be instructed on the protection of cultural, paleontological, and ecological resources. To assist in this effort, the construction contract would address Federal, state, and tribal laws regarding antiquities, fossils, plants, and wildlife, including collection and removal, and the importance of these resources and the purpose and necessity of protecting them.
- Construction sites located in sensitive habitats would require a qualified biologist to conduct a site survey before clearing vegetation. The survey would identify any biologically sensitive issues such as wetlands, vernal pools, or habitat of concern. Western would use Best Management Practices to lessen disturbance.
- During construction, no equipment refueling or oil changing would be conducted within 300 feet of any waterbody or streams.
- Within riverine habitat, ROW clearing would be done by mechanical and manual methods. Construction

activities would not occur within 100 feet of the streambank.

- Vegetation would be controlled or removed in accordance with Western's *Integrated Vegetation Management Environmental Guidance Manual* (Western 1999).
- Elderberry shrubs would be avoided to the extent practical to minimize impacts to the threatened valley elderberry longhorn beetle.
- To the extent practical, freshwater emergent, lacustrine, and riverine wetlands would be spanned and vehicular traffic would not encroach within 100 feet of the boundary of these wetlands.
- To the extent practical, during the wet season, vernal pools would be driven around, spanned, or otherwise avoided.
- Reconductoring and/or replacing insulators on structures containing active raptor nests would be conducted after young birds have fledged. Inactive nests would not be removed from structures unless they pose a safety or reliability hazard.
- Human activity in the Cosumnes River Preserve during the winter months could disturb foraging behavior and adversely affect sandhill cranes. Western would coordinate construction timing in this area with the Preserve and the USFWS to the extent practical.
- Construction between the Cosumnes River and Laguna Creek could result in increased erosion and sedimentation, which may adversely affect fish species occurring in the area. Western would span these water bodies, and no construction equipment would cross via the water bodies, when water is present. In addition, sedimentation control structures would be used to prevent sediment from reaching riverine habitat.
- Hazardous materials would not be drained onto the ground, into streams, or into drainage areas. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, would be removed to a disposal facility authorized to accept such materials.
- Special-status species or other species of particular concern would be considered during post-EIS phases of project implementation in accordance with management policies set forth by the appropriate land-managing agency. This could entail conducting surveys for plant and wildlife species of concern. Where such species are identified, appropriate action

would be taken to avoid adverse impacts on the species or habitat.

- At completion of work, all work areas except access trails would be scarified or left in a condition that would facilitate natural or appropriate vegetation, provide for proper drainage, and prevent erosion.

4.2.2.3 IMPACTS FROM PROPOSED ACTION—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION; REALIGNMENTS; RECONDUCTORING ELVERTA SUBSTATION TO TRACY SUBSTATION

The following section discusses those impacts anticipated to occur to critical habitat, special status species, and sensitive habitat types as a result of implementation of the Proposed Action. The Proposed Action includes work in all segments (Segments A through H).

Construction, reconductoring, and realignments may result in adverse impacts to biological resources. These impacts may include the discovery of an endangered, threatened, or critical habitat during construction or impacts to wetlands if Western was unable to span the area.

To avoid significant impacts, Western's construction and operation activities would comply with the EPMs presented in Table 3-4. Additionally, after the selection of a project, Western would prepare a Biological Assessment and survey the area as part of Section 7 consultation with the USFWS. The USFWS Section 7 consultation would evaluate the potential impacts to the Federally listed species presented in Appendix C, Table C-2. The CDFG would be consulted for state species of concern also listed in Table C-2.

If the project selected is located in San Joaquin County, Western would coordinate with Joint Powers Authority of San Joaquin County. San Joaquin County is within the area covered by the San Joaquin Multi-species Habitat Conservation Plan (MSHCP or Plan). The San Joaquin MSHCP conservation strategy relies on minimizing, avoiding, and mitigating impacts for species covered under the MSHCP, including Swainson's hawk, valley elderberry longhorn beetle, giant garter snake, burrowing owl, vernal pools, and vernal pool species.

Designated Critical Habitat

Critical habitat for the VELB is found near the transmission line between the Elverta Substation and Hurley Substation. No other critical habitat for VELB is designated within the study area.

The need to remove elderberry shrubs from the ROW and at structure locations would result in direct, adverse impacts to the threatened VELB. Replacing insulators and

rehanging the conductors would involve going to a specific structure by truck and cutting back vegetation within a 20-foot radius of the structure to allow a safe work area. Where these structures are co-located with elderberry shrubs, for instance along the American River Parkway, the VELB could be directly impacted.

Elderberry shrubs would be avoided to the extent practical to minimize impacts to the threatened VELB. If impacted, mitigation measures would be implemented in accordance with the Biological Opinion. Construction staging areas would be planned to avoid impacting elderberry shrubs. In areas where elderberry shrubs occur adjacent to construction, environmentally sensitive area fencing would be put in place under the supervision of a biological monitor.

Critical habitat for winter-run and spring-run Chinook salmon also exists in the study area within the Sacramento-San Joaquin Rivers Delta. Critical habitat for salmon is considered all tidal waters of the Delta, including the San Joaquin River and its tributaries.

Special-status Wildlife and Plant Species

Endangered or threatened wildlife and plant species associated with vernal pools may be adversely impacted by the movement of vehicles through vernal pools. Where possible, vernal pools would be avoided by requiring vehicles to drive around them, or span them during construction. Consultation with the USFWS will determine mitigation that may be required for temporary impacts to vernal pool species.

Raptor nests may be impacted during reconductoring or replacing insulators on transmission line structures. Sandhill cranes that may be present at Cosumnes River Preserve during winter migration could be affected by disturbance caused during construction.

To the extent practical, reconductoring and insulator replacement would occur outside the nesting season to avoid impacts to nesting birds, including raptors (approximately mid-February through mid-July). On towers with active raptor nests, construction would be conducted after young birds have fledged as determined by the qualified biologist. Inactive nests would not be removed from structures unless they pose a safety or reliability hazard. This work would also be scheduled to avoid winter migration of sandhill cranes at Cosumnes River Preserve, Segments E and E₁, MP 4.0 to 7.0. Construction timing in this area would be coordinated with the Preserve and the USFWS to the extent practical.

Sensitive Habitat Types

Constructing a new transmission line between the O'Banion Substation and the Elverta Substation

(Segment A₁) would require the temporary disturbance of more than 419 acres and the permanent disturbance of over 54 acres of habitat. This would result in impacts to all of the habitat types discussed for Segment A₁ (Section 4.2.1.3).

Impacts to riverine and freshwater emergent wetlands may also occur with construction of a new transmission line. Temporary water crossings (timber mats, etc.) may be built to access areas between the Cosumnes River and Laguna Creek, which may unavoidably cause increased sedimentation of riverine habitat. Further discussion of wetland impacts is presented in Section 4.16.

Removal of large woody vegetation from the water's edge in riparian habitats would result in some additional solar heating of the water. Removing vegetation in the riparian zone would also result in erosion and the subsequent increase in sedimentation of the watercourse. This would reduce the value of the habitat to aquatic and semi-aquatic wildlife.

The addition of a new double-circuit transmission line in this area, parallel to the existing line, would increase the possibility of bird collisions. If collisions occur, Western would provide marking devices to minimize collisions.

Reconductoring the existing transmission line between the Elverta Substation and the Hurley Substation (Segment C) would result in the temporary disturbance of 6.6 acres. It would involve two major actions that could result in direct impacts to biological resources. These actions would be development of pulling or tensioning sites necessary for installing new conductors and replacement of insulators on each structure. Typically, a pulling site would be required in the existing ROW, approximately every two to five miles. Constructing the pulling sites would result in minor additional loss of vegetation.

Where previously cleared areas are not available, it would be necessary to clear an area of vegetation for the pulling site. These uncleared areas would include places where the pulling sites occur at turning structures. Because the conductors and overhead ground wires are pulled in a straight line, when the transmission line turns a corner, the pulling sites may occur outside the ROW. Removing vegetation in these areas would typically be a short-term impact since vegetation would grow back.

Modification or replacement of some of the existing structures would provide additional support for the new conductor. These modifications may include increasing the height of, or reinforcing the structures, or installing larger cross-arms. Any of these activities would occur in the existing ROW. The impacts would be similar to those described above for replacing insulators.

Reconductoring the existing transmission line in Segment D (from the Hurley Substation to the Elk Grove Substation) would require temporary disturbance of approximately 16 acres. The same biological impacts described for Segment C would pertain to Segment D.

Reconductoring the existing transmission line in Segment E (from the Elk Grove Substation to the Tracy Substation) would require temporary disturbance of about 43 acres. The same biological impacts described for Segments C and D would pertain to Segment E.

There are two stream crossings in Segment G (located east of the starting point of Segment F to the Cottonwood–Roseville transmission line) totaling approximately 0.2 mile of riverine and riparian habitat. Realigning approximately five miles of the Cottonwood–Roseville transmission line would require new construction resulting in nearly 90 acres of temporarily disturbed habitat and almost 12 acres of long-term habitat disturbance. Some of this habitat is considered suitable for giant garter snake, fairy shrimp, and red-legged frog.

Abandonment of a transmission line may require the movement of personnel and equipment to remove conductor and shield wire, along with the steel structures. The actions and equipment required for abandonment would be similar to construction and would cause similar impacts. Biological resources that could be affected by these actions include wetlands, including vernal pools where they occur, as well as riparian and agricultural habitats. Impacts to the agricultural habitats would be temporary and short term.

4.2.2.4 IMPACTS FROM ALTERNATIVE 1—RECONDUCTORING O'BANION SUBSTATION TO TRACY SUBSTATION

The following section discusses potential impacts to critical habitat, special-status species and other sensitive habitat types resulting from implementation of Alternative 1. EPMs presented in Table 3-4 and consultation and coordination described for the Proposed Action would apply to Alternative 1. Alternative 1 consists of Segments A, B, C, D, and E (see Section 4.2.1.3). Reconductoring existing lines from the O'Banion Substation to the Tracy Substation would result in fewer impacts to biological resources than the Proposed Action. There are fewer acres of temporary disturbance and no areas of long-term disturbance. There would be no additional ROW requirements, although pulling sites may be required outside the ROW at turning structures.

Designated Critical Habitat

Critical habitat for the VELB is found near the transmission line between the Elverta Substation and Hurley Substation. Reconductoring of the transmission line

would not result in any impacts to the VELB critical habitat. Critical habitat for the winter-run and spring-run Chinook salmon occurs within all tidal waters of the Delta, including the San Joaquin River and its tributaries. Reconductoring would not impact this critical habitat.

Special-status Wildlife and Plant Species

In some cases, recurrent removal of elderberry shrubs may be necessary. Implementation of the EPMs and the anticipated Section 7 consultation with USFWS would minimize the magnitude of biological resource impacts.

Reconductoring the existing transmission line would not increase the potential for bird collisions. Spacing of conductors and other equipment would minimize the likelihood of large bird electrocutions.

Sandhill cranes that may be present at Cosumnes River Preserve during winter migration could be affected by disturbance caused during construction.

Sensitive Habitat Types

The impacts would include the movement of equipment down the ROW and removal of vegetation within 20 feet of existing structures for safe workspace. Pulling and tensioning sites would also be cleared.

Depending on the type of wetland and timing of construction, movement of equipment through the wetland could result in contamination of the water or adversely affect the impermeable layer that keeps water from percolating down through the substrate. In those areas where the existing ROW contains wetlands, impacts would occur as described in Section 4.16.

Under Alternative 1, it would be necessary to modify or replace approximately 199 existing structures to provide additional support for the new conductor. These modifications may include increasing the height of, or reinforcing the structures, or installing larger cross-arms. Any of these activities needed would occur in the existing ROW. This work may result in impacts to elderberry shrubs if they exist beneath any of the 199 existing structures to be modified or replaced. The impacts would be similar to those described above for the Proposed Action.

4.2.2.5 IMPACTS FROM ALTERNATIVE 2—NEW TRANSMISSION O'BANION SUBSTATION TO ELVERTA SUBSTATION AND REALIGNMENTS

The following section discusses impacts to critical habitat, special-status species, and other sensitive habitat

types resulting from implementation of Alternative 2. EPMs presented in Table 3-4 and consultation and coordination described for the Proposed Action would apply to Alternative 2. Alternative 2 includes Segments A₁, B, F, G, and H.

Designated Critical Habitat

Critical habitat for the VELB is found near the Elverta Substation. No impacts to designated critical habitat would occur under Alternative 2.

Special-status Wildlife and Plant Species

The need to remove elderberry shrubs where they occur in the ROW and at structure locations, particularly along riparian habitats, would result in an adverse impact to the VELB. The EPMs and the anticipated Section 7 consultation with USFWS would minimize the magnitude of impacts.

Building a new double-circuit, 230-kV transmission line from O'Banion Substation to Elverta Substation would require the temporary disturbance of 486 acres and the permanent disturbance of nearly 66 acres of habitat. It could result in impacts to all of the habitat types discussed in Section 4.2.1.3. Primary concern would be impacts to vernal pools. Movement of vehicles through vernal pools would result in adverse impacts to the habitat by contamination and possibly the loss of integrity of the impermeable substrate. Further discussion of potential impacts to vernal pools is provided in Section 4.16.

The addition of a new double-circuit transmission line in this area, parallel to the existing transmission line, would increase the possibility of bird collisions. The design requirements of the transmission line would minimize the potential for electrocutions of large birds.

Sensitive Habitat Types

Additional impacts to riverine and freshwater emergent wetlands are also a possibility. Removal of large woody vegetation from the water's edge in riparian habitats would result in additional solar heating of the water. Removal of vegetation in the riparian zone would result in erosion and the subsequent increase in sedimentation of the watercourse, which would adversely affect aquatic and semi-aquatic wildlife.

Although some habitat alteration would occur, there are no large tracts of forested habitat in these segments that would suffer from fragmentation if a 125-foot ROW were cleared through them.

4.2.2.6 IMPACTS FROM ALTERNATIVE 3—NEW TRANSMISSION ELK GROVE SUBSTATION TO TRACY SUBSTATION

The following section discusses impacts to critical habitat, special-status species, and other sensitive habitat types resulting from implementation of Alternative 3. EPMs presented in Table 3-4 and consultation and coordination described for the Proposed Action would apply to Alternative 3. Alternative 3 consists of Segment E₁.

Designated Critical Habitat

Critical habitat for the VELB is found near the Elverta-Hurley transmission line. There is no VELB critical habitat designated within the alignment from the Elk Grove Substation to the Tracy Substation. Critical habitat for the winter-run and spring-run Chinook salmon occurs within all tidal waters of the Delta, including the San Joaquin River and its tributaries.

Where the transmission line crosses the San Joaquin River or its tributaries, measures would be taken to avoid impacts to the waterways so as to avoid impacts to the listed winter-run and spring-run Chinook salmon.

Special-status Wildlife and Plant Species

In some cases, recurrent removal of elderberry shrubs may be necessary. The EPMs and the planned Section 7 consultation are expected to minimize the magnitude of biological resource impacts.

Segment E₁ contains suitable habitat for the giant garter snake and the red-legged frog, which, if present, would be impacted (directly and indirectly) by constructing and maintaining this transmission line.

The construction of a double-circuit transmission line in this area would increase the potential for bird collisions. The stacked configuration of conductors and shield wires on the double-circuit structure would increase the number of wires to be avoided. This would be problematic at communication corridors such as at watercourses and valley crossings. The design requirements of a 230-kV transmission line would minimize the likelihood of electrocution of large birds.

Sandhill cranes that may be present at Cosumnes River Preserve during winter migration could be affected by disturbance caused during construction.

Sensitive Habitat Types

This alternative would temporarily disturb more than 850 acres and permanently disturb more than 100 acres of habitat. It could result in impacts to all habitat types discussed in the characterization of Segment E₁ (Section

4.2.1.3). Primary concern would be of impacts to the Cosumnes River Preserve. Movement of vehicles through this area could result in adverse effects to riverine and freshwater emergent wetlands by contamination. Removing large woody vegetation from the water's edge in riparian habitats would result in some additional solar heating of the water. Clearing vegetation in the riparian zone would result in erosion and the subsequent increase in sedimentation of the watercourse, which would adversely affect aquatic and semi-aquatic wildlife. Vernal pools have also been identified within the Cosumnes River Preserve in the vicinity of the transmission line (May Consulting Services October 2000).

There is a possibility for indirect long-term impacts from creating new access into the Cosumnes River Preserve through the development of access roads. While the land managers minimize entrance to the Preserve, the presence of new access roads and the movement of heavy equipment increase the likelihood that others may find an entrance to explore the area.

4.2.2.7 IMPACTS FROM THE NO ACTION ALTERNATIVE

If the facilities were not developed, routine and emergency maintenance would continue to repair or replace equipment or remove vegetation, which threatens worker and public safety and transmission line reliability. As the existing facilities age, emergency maintenance of the system would probably increase.

Under the No Action Alternative, additional indirect impacts to biological resources would not occur. However, direct impacts associated with routine and emergency maintenance would continue. Activities in the ROW, including the methods used for access and maintenance, would remain.

No additional impacts to special-status species would occur beyond those described in the Programmatic Biological Opinion issued for Western's routine maintenance activities by the USFWS on May 27, 1998.

4.3 CULTURAL RESOURCES

4.3.1 AFFECTED ENVIRONMENT

Cultural resources are aspects of the physical environment that relate to human culture and society and cultural institutions that hold communities together and link them to their surroundings. Cultural resources include expressions of human culture and history in the physical environment (such as prehistoric and historic sites, buildings, structures, objects, districts, and other places, including natural features) considered important to a culture, subculture, or community. Cultural resources

also include traditional lifeways and practices, community values, and institutions.

Cultural resources have an important role in connecting all contemporary societies to their heritage and traditions, thereby providing structure and perspective for contemporary life. Once damaged or destroyed, these resources are essentially nonrenewable, though the tangible evidence of the past sometimes may be restored or reconstructed to some degree.

Western has prepared and distributed a Programmatic Agreement (PA) for this project to meet compliance with Section 106 of the *National Historic Preservation Act* (NHPA). The PA describes procedures to identify cultural resources within the area of potential effects. All identified cultural resources would be evaluated and treated in consultation with the parties participating in the PA.

4.3.1.1 RESOURCE STUDY AREA

The resource study area for assessing impacts on cultural resources was considered the "area of potential effects," as defined by regulations. The area of potential effects is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties" (36 CFR Part 800.16[d]).

The area of potential effects was considered the ROW where ground-disturbing activities could occur. This also includes the ROW for existing or new access roads.

Potential indirect effects include visual and noise intrusions that could diminish the historic values of certain cultural resources. The area of potential indirect effects is defined as extending up to 0.25 mile from any project component.

Methods used to identify the presence of cultural resources and to determine National Register of Historic Places (NRHP) eligibility vary among the cultural resource types. Pedestrian surveys are used to locate prehistoric and historic resources, and sometimes excavations or in-depth architectural recordings are required to evaluate NRHP eligibility. Archival research of written records helps identify historic resources or possible traditional cultural properties (TCPs). Consultations with interested Native American tribes or other culture groups identify TCPs and religious resources. Consultation sometimes includes meetings with traditional religious practitioners, interviews with knowledgeable individuals, and site visits to particular areas of concern.

Western completed archival research to determine if any cultural resources have been identified within the ROW or within one-quarter mile of the ROW of any of the alternatives. The research was conducted at the Califor-